

# SUMMARY

## INTRODUCTION

In the ACT, climate change is expected to result in more frequent and severe heatwaves, storms, bushfire risk and drought. The ACT Government commissioned the University of Canberra to develop and undertake the first survey of the community that can be used to assess overall resilience to the expected effects of climate change, and areas of high and low resilience. The survey is intended to be repeated over time to track how successfully residents adapt. A survey of 2,671 people over 18 years old, living in the 'ACT region' (ACT, Queanbeyan, Googong) was undertaken during February and March 2018. A person who is highly resilient to *all* expected effects of climate change would have access to six types of resilience to help them adapt successfully:

1. *Individual resilience resources* such as income and good social networks that people use to cope and adapt to climate-related events
2. *Community resilience resources* including government and other institutions that provide support to reduce impacts of climate-related effects
3. *Heatwave resilience*: access to heat refuges and positive coping strategies, in particular a residence that can be affordably maintained at comfortable temperature
4. *Extreme weather resilience*: prepared for extreme weather events such as storms, bushfire and flood, including having insurance and clear emergency plans
5. *Drought resilience*: ability to maintain gardens and nature connection in dry times
6. *Awareness and support for action*: awareness of expected effects and confidence both to take individual action, and to support government adaptation action.

## KEY FINDINGS

Two-thirds of adults in the ACT region (66.9%) have moderate to high resilience to the expected effects of climate change. One-third have low or very low (33.1%) resilience, and are highly vulnerable to negative impacts from the effects of climate change (Figure E1).

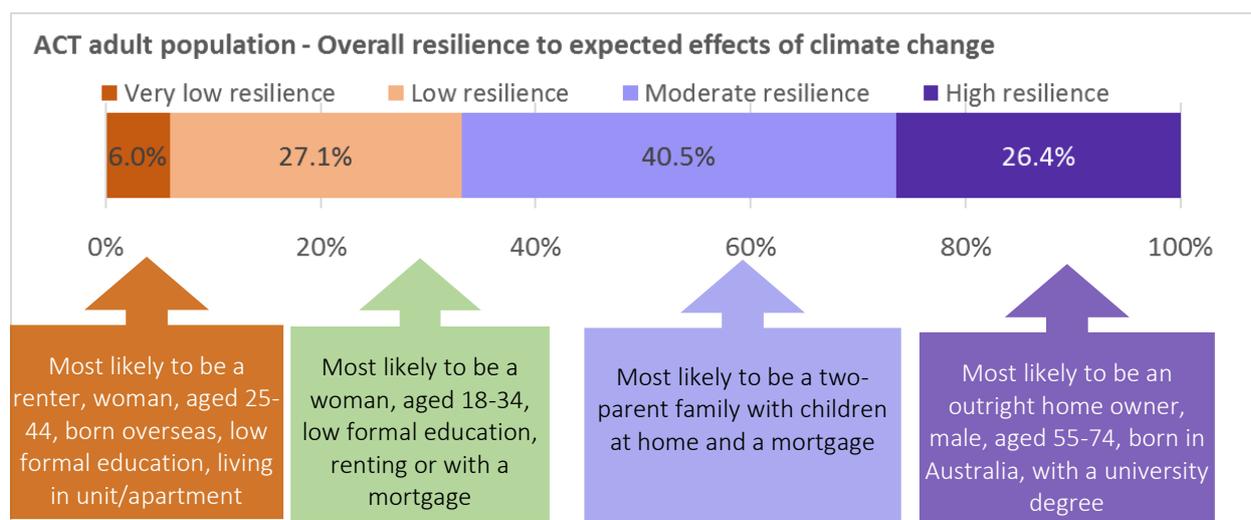


Figure E1: Types of people with lower and higher resilience

While the primary predictors of low resilience to climate change were age, type of housing lived in, and family structure, resilience varied across the ACT region. The findings were mapped to show the proportion of the population with low and very low resilience in different places in Canberra (Figure E2). A higher than average proportion of the population had low resilience to climate change in Gungahlin, Outer Belconnen and Tuggeranong South. Low resilience was least common in Belconnen East and Woden Valley.

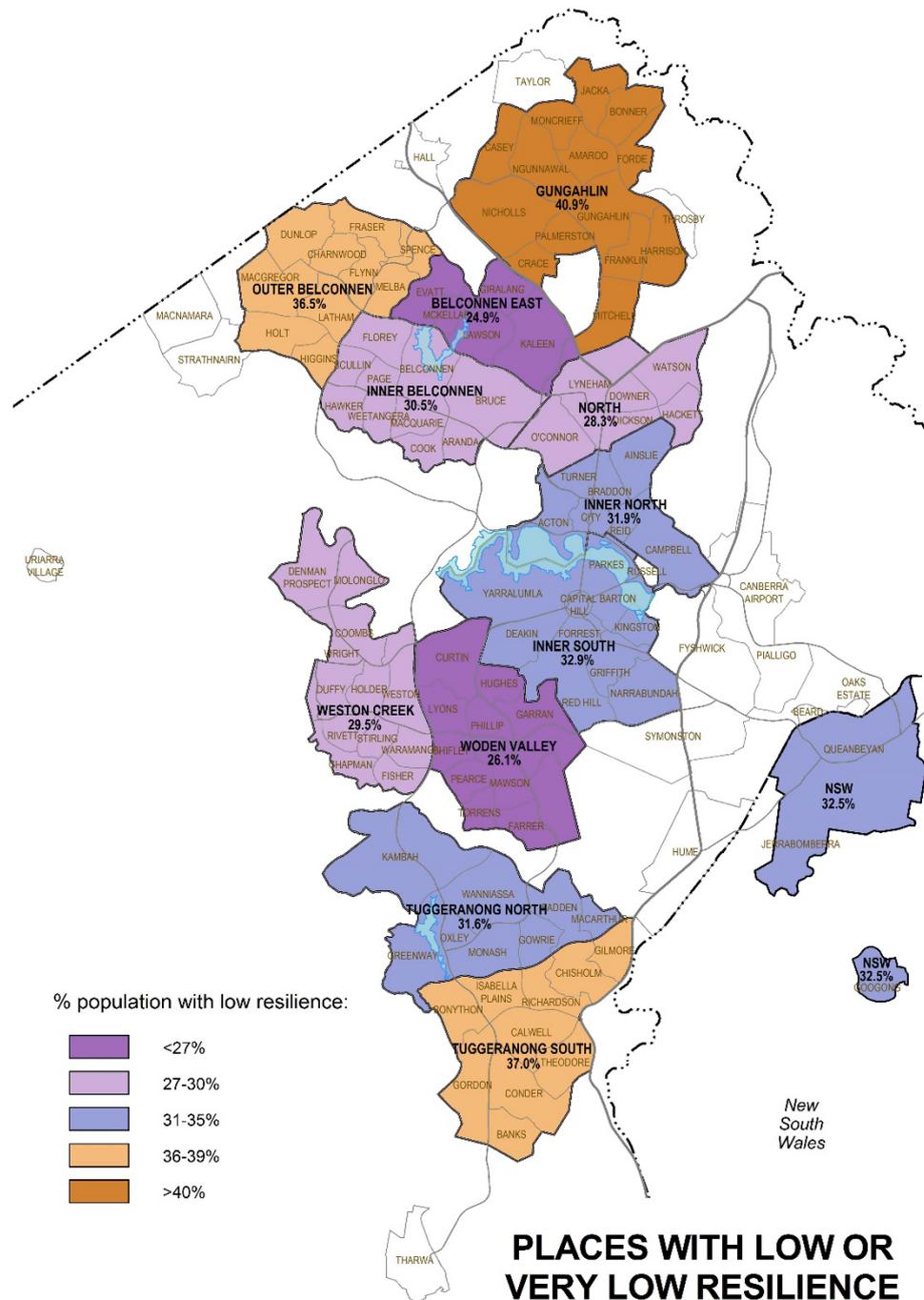


Figure E2 Proportion of population with very low or low resilience across the ACT region

## *RESILIENCE RESOURCES*

Of the six dimensions of resilience resources examined, resilience was lowest in two areas:

1. Performance of dwellings in heatwaves: 35.9% lived in homes that perform poorly in heatwaves
2. Preparedness for extreme weather events: 39.4% had low resilience to these events.

These are the only two areas in which, when resilience was measured on a scale from 0 to 10, the average score across the ACT region was lower than 5.

Areas in which residents most often had high resilience were:

1. Awareness and support for action on climate change: Less than 5% had low resilience
2. Access to individual and community resources: Few had low levels of any of the types of resources examined.

## *CHANGES TO DWELLINGS*

More than one-third of ACT region residents (35.9%) live in homes that perform poorly in heatwaves: they heat up quickly, cool down slowly, and high costs are incurred to cool them during extended heatwaves. Almost one-third (32.0%) cannot readily afford to cool their home in heatwaves. Renters, younger people, and those living in units/apartments are most vulnerable.

Renters and those living in units/apartments have less opportunity to adapt due to lack of ability to implement many actions in their residences that can improve preparedness and reduce impacts of events such as heatwaves. With renters comprising about one third of the population (29.8% in 2016), and an increasing proportion of the population (not just young single people) living in units/apartments (10.7% in 2016), it is important to identify what might need to change to enable successful adaptation.

## *EXTREME EVENTS: HEATWAVES, STORM, FLOOD, DROUGHT AND BUSHFIRE*

More than one-third (39.4%) of the adult population of the region have low resilience to extreme weather events. This is often a result of insufficient planning or preparation: for example, only 20.2% have emergency kits in their home, and only 13.1% had discussed an emergency plan with others in their households in the last 12 months. Additionally, many have low rates of insurance to cover damage from these events. Renters, younger people, and those living in units/apartments are amongst the most vulnerable.

Urban areas experience the effects of drought differently to rural areas. As noted above, many have low preparation for the increased bushfire risk that often accompanies drought; while 25.9% have asthma or other respiratory conditions that increase their vulnerability to dust storms that can occur in severe drought. People who highly value keeping their garden green, and have a garden with high watering needs (17.2%) have low resilience to drought. The effects of reduced amenity of nature areas and open spaces during drought on health and wellbeing were not explored in this survey and more information is needed.

More information is also needed to understand vulnerability to heatwaves. For example tracking heat-related health admissions and outcomes will help better understand health-related climate vulnerability, and interactions with dwellings and the city's living infrastructure.

#### *CLIMATE CHANGE AWARENESS AND SUPPORT FOR ACTION*

Almost nine in ten adults (89.7%) living in the ACT region felt climate change is a genuine problem for the future, and 86.9% felt it is important to act now to reduce effects of climate change.

Overall, only 4.8% had low awareness and willingness to act on climate change, and only 4.3% had low support for government action.

However, despite being willing to act, confidence in being able to easily adapt is low. Less than one third (31.5%) felt confident they could readily adapt to any climate change occurring in their lifetime. This low confidence can limit successful adaptation, and people need to be provided with support to adapt successfully. There is an ongoing need to provide feasible strategies to help prepare for and adapt to the effects of climate change.

Despite high support for ACT government action, many ACT government workers are not aware of how they can act to support achieving the government's climate change objectives, also suggesting a need to invest in increasing awareness and action across all of government.

There is high concern about low 'fitness for purpose' of dwellings and high support for government action to address this. Almost nine in ten (89.7%) support the ACT government introducing stricter regulations for buildings. Just over half (52.7%) support requiring retrofitting of private homes and this increases (67.6%) amongst renters.

### **RESILIENCE DISCUSSION**

Successful climate change adaptation actions will help bolster the ACT's resilience. Based on the Rockefeller Foundation's Resilience Framework, the following indicators have been tailored for Canberra's community: reflective, inclusive, robust, flexible, resourceful, integrated, viable and capacity. The discussion below draws on the survey findings to illustrate how consideration of these characteristics help to achieve a resilient community.

#### *REFLECTIVE*

Reflective adaptation draws on past experience and learns from it to inform future decisions. The results of this study suggest that those who have most successfully engaged in proactive adaptation are those with high access to resilience resources. This group is better able to adapt without support from government. However, some with good access to resilience resources have not drawn on these to engage in proactive adaptation actions to prepare for extreme weather events, heatwaves and drought.

Building higher resilience through the whole population requires approaches to reach and provide options for (i) those with lower access to resilience resources who have less capacity to adapt, particularly to younger people, renters, apartment dwellers and those with low financial resources; and (ii) those with moderate to high resilience resources who are not currently drawing on these to invest in preparing for the expected effects of climate change.

#### *INCLUSIVE*

Inclusive adaptation requires shared ownership in decision making, and social license for outcomes. The survey findings show a high level of social license for government action, with most residents strongly supporting government climate change objectives and implementing climate change adaptation. There is somewhat less support for actions which impact on cost of living, such as mandatory retrofitting of private buildings.

Inclusive adaptation strategies require government support to help identify adaptation options people and groups can implement themselves and to build confidence to implement adaptation actions at the individual, household and community scale.

#### *ROBUST*

Robust adaptation involves ensuring the city's physical attributes, along with social and economic systems, are strengthened to be fit-for-purpose for the future climate. Adaptation for the city's buildings, places, parks and infrastructure requires reducing exposure to risks such as heatwaves, though being energy efficient and able to cool down after a hot day.

Public places and all buildings which perform poorly in heatwaves increase the risk of heat-related illness and anti-social behaviour. High reliance on air conditioning is maladaptive, it increases financial vulnerability for those less well off, adds more heat into the locality, plus increases electricity demand, which in turn increases the risk of blackouts.

#### *FLEXIBLE*

Flexible adaptation requires being able to respond to changing circumstances. Achieving and maintaining flexibility requires supporting all people, particularly those with low access to resilience resources, helping provide options for ways to adapt to both expected and unexpected events.

Flexibility is not static and varies throughout people's lives depending upon circumstances, however flexibility is not usually a feature of government processes and procedures. Timely monitoring of trends and evaluation of progress is essential to be flexible and avoid maladaptation.

## CONCLUSIONS

Although resilience is moderate to high for most people in the ACT region, for one in three people, resilience is low. The reasons for low resilience vary, and opportunities for improvement exist with both individuals and government.

Even for those with moderate resilience, many dwellings do not protect them well from heatwaves, and they have low preparedness for extreme weather events. Addressing the high proportion of housing that is not fit-for-purpose for the future requires both government regulatory intervention and support, as well as increased investment by those who have the resources to increase resilience to dwellings to heatwaves and extreme weather events.

Residents of the region have high awareness and willingness to act on climate change. However, this is not currently translating into high preparedness for the effects of climate change, for two differing reasons. Amongst those with low and very low resilience, limited access to resilience resources is reducing ability to adapt: despite high willingness, these groups require support to adapt. Those with moderate resilience, however, typically have good access to resilience resources, but are not drawing on these to invest in adaptation actions. For this group, what is needed is investment in strategies to build confidence in and ease of investing in proactive adaptation to the expected effects of climate change.